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ABSTRACT

In a study of the use and potential of incomplete pictures for enhancing recall of orally presented prose passages, 72 educable mentally retarded (EMR) students, half reading at or above a third-grade level and half below, were randomly assigned in equal numbers to one of four conditions: control, imagery, and two incomplete-picture variations. No significant differences in story recall were observed among experimental conditions. The lack of an imagery effect replicates the results of a previous study using similar Ss. A significant correlation between mental age and performance was detected in the imagery condition. A five-page list of references is offered. The two appendixes consist of the following: (1) stories and recall questions presented to EMR subjects; and (2) instructions to EMR subjects in each of the four groups. (CL)

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Working Paper No. 268

INCOMPLETE PICTURES AND RETARDED CHILDREN'S ORAL PROSE LEARNING

by Barry L. Wasserman

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INCOMPLETE PICTURES AND RETARDED CHILDREN'S ORAL PROSE LEARNING

by

Barry L. Wasserman

Report from the Project on
Studies in Language: Reading and Communication

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August 1979

This working paper is a thesis submitted in partial fulfillment of the requirements for the degree of master of science in Educational Psychology at the University of Wisconsin-Madison.

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Abstract

The present study probed further into the use and potential of incomplete pictures for enhancing recall of orally presented prose passages in an educable mentally retarded population. Seventy-two subjects, half reading at or above a third-grade level and half below, were randomly assigned in equal numbers to one of four conditions: control, imagery, and two incomplete-picture variations. No significant differences in story recall were observed among experimental conditions. The lack of an imagery effect replicates the results of a previous study using similar subjects. A significant correlation between mental age and performance was detected in the imagery condition.

Chapter 1

Introduction

When someone is given a specific memory task, successful performance depends on effective transformation of available information into well-organized, meaningful and easily recognizable chunks of data. In the research literature the term "mnemonic mediation" has been used to describe this process and is defined by Flavell (1970, p. 183) as "those cognitive activities which could be deliberately undertaken for the purpose of storing and retrieving input." By this definition mnemonic mediation parallels problem-solving activities in which "recall" is the "goal" or problem solution. Yet all day long people rely on a wide variety of plans, schemes, devices and strategies to help them remember things without awareness of what they are doing. For the majority of us it may not be so important to know just how our memory works; that one can and does use one's memory may be sufficient in itself. But for educators to understand how one organizes and remembers information may be very beneficial and lead to improved classroom teaching methods. This is especially true for young children and the retarded who are typically considered to be deficient in short-term memory and who usually do not initiate strategies to help themselves learn and/or remember things.

The effectiveness of any mnemonic device will depend on a combination of the characteristics of the particular mediator,

task, and individual involved. For example, at one time it was thought that retarded individuals could not use mediators to facilitate any memory task and the term "mediational deficiency" (Reese, 1962) was developed to describe those subjects who seemed unable to use a potential mediator under any circumstance. However, later research with paired-associate (PA) learning demonstrated that adult retarded subjects could successfully use supplied sentence mediators to facilitate recall (Jensen & Rohwer, 1963). Flavell, Beach and Chinsky (1966) then made a distinction between a mediational deficiency and what they called a "production deficiency". Although a subject may not spontaneously produce a mediator to facilitate an appropriate recall task (and thus appear to have a mediational deficiency), if (s)he is able to use a mediator to facilitate recall when instructed to do so and/or when provided with an appropriate mediator for a specific task, (s)he is considered to be production deficient.

In sum, successful facilitation of recall on a memory task depends to a large degree on matching appropriate mediators (supplied vs. self-generated, syntactic vs. pictorial, etc.) and tasks across individuals. The focus of much research has been to investigate the relation between one's developmental level and the spontaneous use of mediational strategies, as well as the extent to which such spontaneous use can be trained.

Previous research has shown that visual imagery can be used as a successful mnemonic device in a wide variety of learning situations. It is the purpose of the present study to further explore the use of visual imagery as a means of facilitating oral prose recall for educable mentally retarded subjects. Other related studies are summarized and discussed below in an attempt to set the stage and help the reader understand the rationale behind the particular design of this experiment.

Chapter 2

Review of the Literature

Visual Imagery and Paired-Associate Learning

Early work with children indicated that the use of visual imagery can be an effective facilitator of PA learning (Levin, 1976; Pressley, 1977). For example, if a child must learn to associate the two stimuli, soldier and drum, an experimenter might present him or her with an illustration of a soldier and a drum interacting (i.e., the soldier may be beating the drum), or the child might be instructed to generate his or her own internal image of the two objects interacting. Levin (1972) has referred to these two "imagery" situations as imposed and induced respectively. Although both imposed and induced imagery manipulations have been found to facilitate recall in several PA studies, it has been suggested that at least as far as induced imagery is concerned there may be developmental differences in its effectiveness. Thus, even though imposed imagery manipulations have been found consistently to facilitate the PA learning of subjects of varying ages and intellectual abilities, induced imagery manipulations have not (see Levin, 1976; and Pressley, 1977).

For example, when children were presented with 16 pairs of common children's toys and instructed to make up a picture in their head of the toys in each pair "playing together", Wolff

and Levin (1972, Experiment 1) found that third-grade children but not kindergarteners were successful at this task. However, imposed imagery manipulations (i.e., when children watched the experimenter actually play with each pair of toys in a pre-established manner) were effective at both age levels.

Numerous attempts have been made to focus on a minimum age at which children are capable of generating and using interacting images to facilitate PA recall. Several studies are summarized below in order to provide a sample of and familiarize the reader with experiments that have been conducted on this topic.

Induced Imagery with Normal Children

Levin, Davidson, Wolff and Citron (1973) worked with second and fifth graders and asked them to learn a list containing both word and picture noun pairs. Results showed that both age groups were capable of using induced imagery to facilitate PA learning.

Whereas Levin et al. (1973) asked children to memorize printed word pairs, Begg and Anderson (1976) asked second- and sixth-grade students to memorize a list of ten pairs of nouns presented orally. Control subjects received no imagery instructions, while the others were asked to remember each pair as a single interactive image or as two separate images. Performance of subjects in the interactive imagery condition was

found to be significantly better than that of the separation/ imagery or control groups at both grade levels.

Other studies which have presented noun pairs orally have included subjects even younger than second grade. Kemler and Jusczyk (1975) used adult and first and fourth grade subjects to test whether imagery instructions or instructions to use sentence mediators (making up a sentence which includes the nouns to be remembered) would facilitate PA recall. Results indicated that both sets of instructions were effective with noun pairs across age levels, although it was noted that first graders benefited less from self-generated mediation than the older subjects. In addition, Levin and Pressley (1978) found that even kindergarteners in an induced imagery condition outperformed their peers in a no-imagery control condition. Age, nonetheless, predicted the success of the imagery treatment, even within this narrow developmental range.

The above findings suggest that children as young as five can benefit from induced imagery techniques coupled with a PA recall task. The effect is not as strong nor as consistent (e.g., Wolff & Levin, 1972, Experiment 1; Montague, 1970; and Rohwer and Ammon, 1971) as it is when an imposed imagery strategy is employed however. What these findings do suggest, if looked at as a whole, is a general age range (5-7) or stage of development during which the average child begins to acquire the ability to profit from induced imagery instructions.

Induced Imagery with Special Populations

The effects of induced imagery instructions on PA learning have been examined not only with children of "normal" intellectual ability but with retarded populations as well. Yarmey and Bowen (1972) presented retarded subjects (ages 8 - 13 years; $\overline{IQ}$ = 71.3) with visual lists of 16 paired items (eight printed noun pairs and eight picture pairs) under three conditions: control, intentional imagery, and incidental imagery. Half of each of the noun and picture pairs were presented once; the other half were presented four times. People in both imagery groups were first asked to imagine a mental picture between each noun or picture pair and then were asked to rate (on a scale from one to five) how easy it was to do the task. Subjects in the intentional condition were also told that later they would be shown words or pictures (one at a time) and asked to write down the ones that went with them. The use of imagery instructions under both of these conditions was found to facilitate recall for retarded subjects. Recall was also greater for pairs presented four times indicating a possible repetition effect for these subjects.

Retarded persons were used in another PA study conducted by Lebrato and Ellis (1974). Apparently these subjects were unable to generate interacting images and to use them to mediate PA learning without prior training accompanied by

visual aids. In one experiment "mnemonic" subjects ($\overline{CA}$ = 18.1; $\overline{IQ}$ = 55.8) had first been asked to memorize a ten-unit rhyme (e.g., "one-bun, two-shoe...") and then to recall a list of ten number-word pairs (e.g., 1:car, 2:flag...) in random order. Even though they received instructions that if they formed an interacting image between the rhyming word and the word to be recalled this would help them accomplish the task, recall did not improve relative to that of control subjects.

A second experiment was conducted by Lebrato and Ellis which differed slightly from the first. In addition to receiving instructions to form an interacting image between the rhyme word and the corresponding list word, mnemonic subjects ($\overline{CA}$ = 24.2; $\overline{IQ}$ = 65.3) were also shown pictures of the numbers and rhyme objects (1-bun, 2-shoe, etc.) prior to the recall task. Imagery pretraining which included exposure to concrete pictures did facilitate recall for these retarded subjects relative to pretraining which only provided verbal instructions to image. This finding is consistent with that of Yarmey and Bowen, whose subjects had also been exposed to concrete images of printed noun pairs and picture pairs.

Summary of Laboratory Findings

Results from studies reviewed so far support the hypothesis that developmental differences exist in children's ability to generate and successfully use their own interacting images to

facilitate recall on PA learning tasks. Induced visual imagery is generally beneficial for children about age seven and above, but not always for children six years old or younger, nor for certain retarded subjects (unless presented with appropriate visual cues).

Visual Imagery in Applied PA Learning (Foreign Vocabulary Learning)

Examples of the practical application of laboratory research about visual imagery and PA learning which tie in with the developmental conclusions above deal with the use of picture-word induced imagery such as the "keyword method" of foreign vocabulary learning originally developed with college students by Atkinson (1975) (Levin, 1976; Pressley, 1977; Pressley & Levin, 1978). Atkinson and Raugh (1975) explain that the mnemonic procedure can be broken down into two stages:

> The first stage requires the subject to associate the spoken foreign word with an English word, keyword, that sounds like some part of the foreign word; the second stage requires him to form a mental image of the keyword interacting with the English translation.

For example, using this procedure to learn the translation of the Spanish word carta (letter), a student would first

associate the foreign word carta with the keyword cart and then mentally form an interacting image of the keyword cart with the English translation letter. An example of such an interacting image would be to picture a postal letter inside a shopping cart in order to remember that carta means letter.

Note that the second step of the keyword method utilizes an induced imagery strategy just as described for laboratory PA studies. In light of developmental differences which were reported in children's ability to successfully use self-generated imagery on a PA learning task, it would be expected that children about seven years of age or younger might not benefit from use of the keyword method as described. Pressley and Levin (1978) have used the keyword method and/or modifications thereof (by providing interacting images for the subjects and by providing separate images of the two words to be linked) in attempts to help second- and fifth-grade children learn foreign language vocabulary. As expected, children in both grades were able to benefit from the imposed manipulations but the second graders were not successful with the original Atkinson (pure induced imagery) method. Once again, results support the notion of developmental differences and a general age range during which the average child will begin to benefit from induced imagery procedures in PA learning.

Visual Imagery and Oral Prose Learning

Experimenters have also looked at the use of imagery to facilitate children's prose learning, hoping that these efforts will generate effective strategies for improving children's reading and/or listening comprehension. Results from at least three studies (two with normal populations and one with the retarded) suggest the possibility of developmental differences in the ability to benefit from imagery instructions for prose recall tasks similar to those found for PA learning.

Imagery with Normal Children

Shimron (1974) conducted two experiments with first- and fourth-grade children. In both experiments subjects were divided into four conditions and listened to three short (99 - 121 words) stories. In the complete picture condition, cutouts of story characters and objects were placed on a background scene in a pre-determined position that depicted appropriate spatial relationships and accurately illustrated the story to be heard. In the unstructured picture group children viewed the background scene with cutouts from the story randomly placed below it. In both of these conditions subjects watched the examiner arrange the appropriate cutouts just before listening to each story. In the imagery condition subjects were instructed to form a mental picture of what was happening in the story, and subjects in the fourth condition served as a no pictures/no imagery control group.

Results from the first experiment showed no conditions effect on a free-recall test in which subjects were given a cue and asked to retell the story, nor on a recognition test in which they were asked to verify assertions about the story. The second experiment differed from the first in that the length of the three stories was cut in half (now only 40 - 56 words long) and the recognition test was replaced with a short-answer test consisting of five "Wh" questions (Who, What, When, Where, How) per story. Once again there was no conditions effect on the short-answer test. Each of the three experimental conditions led to improved recall for fourth graders and the picture and unstructured picture conditions led to improved recall for first-grade subjects.

Another study which looked at the use of imposed and induced imagery to facilitate children's prose learning was conducted by Guttmann, Levin and Pressley (1977). Guttmann et al. (1977, Experiment 1) presented children in kindergarten, second and third grades with two ten-sentence stories and later asked them one "Wh" question per sentence. Children were divided into four experimental conditions: control, imagery, partial pictures and complete pictures. While listening to the stories subjects in the complete pictures condition viewed one picture per sentence which depicted everything in that sentence. Subjects in the imagery condition

did not see any pictures but were instructed to pretend that they were being shown a book with pictures in it that depicted all the objects and events of the story. Instructions to generate imagery were beneficial only for third-grade children, whereas visual aids in the complete picture condition facilitated recall for all age groups studied. (The partial picture condition and associated results will be discussed later.)

Imagery with Special Populations

Bender and Levin (1978) recently assessed the use of imagery techniques to facilitate oral prose comprehension with educable mentally retarded (EMR) students ($\overline{CA}$ = 10-0 - 16-11; $\overline{IQ}$ not reported). Subjects listened to a twenty-sentence story and were later asked one "Wh" question per sentence. Picture, imagery and control conditions were almost identical to those employed by Guttmann et al. (1977). In addition, a repetition condition (in which each sentence of the story was repeated twice) was used to address the issue that use of picture and imagery strategies may function simply as an extra "rehearsal" (Levin, Bender, & Lesgold, 1976). It was found that relative to the control condition, only the complete picture condition led to improved recall.

Summary

Results from the imagery/prose studies cited above do parallel those from the imagery/PA literature. Imposed

imagery (complete illustrations) appears to facilitate recall of prose information for subjects of all ages, including the EMR, although developmental differences are suggested in children's ability to profit from induced imagery strategies applied to story recall tasks. However, the minimum age at which subjects can benefit from induced imagery strategies with prose learning appears to be about two to three years older than for PA learning. When working with prose material, instructions to generate visual images seem beneficial only to older (about eight- or nine-year-olds and above) but not to younger children nor to the EMR.

Prompting Imagery in Children's Prose Learning

For laboratory PA, applied PA (i.e., foreign vocabulary learning), and prose-learning tasks, use of experimenter-provided pictures seems to facilitate recall for children of all age groups studied. However, this is not the case when subjects are instructed to generate their own visual images. As an intermediate step, Guttmann et al. (1977) attempted to "prompt" (Rohwer, 1973) an image of relevant story content by "imposing contextual cues in the form of partial pictures" (Guttmann et al., 1977, p. 474).

Partial Pictures

As operationalized by Guttmann et al., partial pictures that accompany sentences in a story depict only a portion of the contents of each sentence. Recall of prose material is then tested by asking a "Wh" question which probes for a

particular concrete element not depicted in the partial picture. For example, in Figure 1 can be seen the partial picture associated with the sentence One evening Sue's family sat down to eat a big turkey for dinner. Its corresponding "Wh" question is What did Sue's family eat for dinner one evening?. The answer to the question (turkey) is not visible in the partial picture.

Results with kindergarteners indicated that assistance (cues) in the form of partial pictures can lead to improved recall of children's simple one-sentence stories where imagery instructions may not (Guttmann et al., 1977, Experiment 2). Yet when partial pictures were presented during multiple-sentence passages, recall improved most for third-grade students, somewhat for second graders and not at all for children in kindergarten.

Once again the idea of developmental differences comes into play with partial pictures being less effective for younger than for older children. In addition, when working with a younger population partial pictures appear more effective at facilitating recall than pure induced imagery strategies but less so than complete pictures.

Picture Elements

Riding and Shore (1974) attempted to prompt imagery and facilitate recall of oral prose in mentally retarded children by using something akin to partial pictures. Subjects were

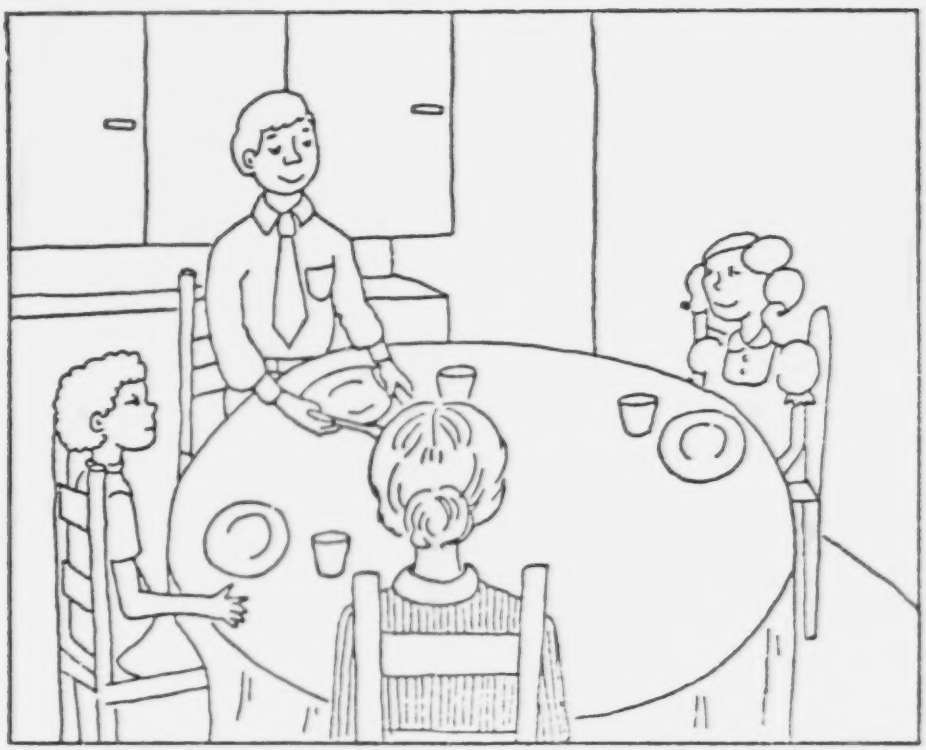

Figure 1. An example of a "partial picture" as developed by Guttmann et al. (1977).

shown illustrations in the form of picture elements, i.e., "an object or objects associated with the subject matter of the prose material..." but which were "...insufficient in them-selves to convey the sense of the prose" (p. 301). In that study 100 EMR subjects between the ages of 9 and 16 ($\overline{CA}$ = 13.93; $\overline{IQ}$ = 67.68) listened to a tape-recording of the last 185 words of a children's prose passage entitled "A Story of Rhodopsis: A Queen of Egypt". During the entire passage some of the subjects were shown a globe with Egypt visible, an earthenware jug and seven pictures depicting a total of 14 objects connected with the story. Reportedly this strategy did improve retarded children's prose learning on a recall test of 43 "Wh" questions which followed the story.

Remember that the use of complete pictures was found to facilitate prose recall of children at all ages studied, whereas developmental differences were noted in children's ability to profit from imagery instructions and/or prompted imagery. Taking these conclusions together with the idea that partial pictures are supposedly more "complete" than picture elements, it is surprising that for a prose passage Riding and Shore were able to facilitate recall of EMR subjects using picture elements while Guttmann et al. were unable to facilitate recall of normal kindergarteners (and second graders) using partial pictures. One would expect that the more complete

the visual cues which accompany a passage the more successful they would be at facilitating prose recall for younger children. A closer examination of one of Shimron's experiments may shed some light on this question.

Shimron (1974, Experiment 2) used something similar to picture elements (random placement of cutouts of story characters and objects) and like Riding and Shore (1974) discovered that pictorial illustration of a text can lead to better prose recall and comprehension for children not previously expected to benefit from induced or prompted imagery (i.e., first graders). For Shimron's study, however, cutouts from the story were clearly visible during the entire passage, including those which were answers to the "Wh" recall questions. In short, this experiment involved the use of imposed and not induced or prompted imagery as discussed earlier. From the information provided by Riding and Shore it was not clear whether any of the displayed pictures used in their experiment were in fact pictures of the answers to some of the recall questions. If this was the situation in their work, it would help explain why their results do not fit the developmental pattern which is evident from the combined results of the many studies discussed above.

Summary

Attempts have been made to use incomplete pictures (partial pictures, picture elements, etc.) as prompts to induce

visual imagery and thereby facilitate children's prose learning. Based on reported studies however, the successful use of picture elements is questionable whereas the use of partial pictures fits in nicely with the general pattern of developmental differences in children's ability to profit from induced imagery strategies used with oral prose passages. That is, based on the studies reported so far imagery instructions alone have facilitated prose learning for children only in third grade and above while the use of partial pictures is assumed to have prompted imagery and has been somewhat successful at helping second graders to improve recall as well (Guttmann et al., 1977).

Since it appears that children below second grade are generally unsuccessful at using partial pictures to facilitate prose learning, Ruch and Levin (in press) conducted an experiment to explore the locus of the problem. The hypothesis tested was that prose recall had not been facilitated not because younger children cannot generate images but because subjects of this age are unable to retrieve the induced images following the story. Results supported this idea and indicated that partial pictures can function as effective prose-learning aids even for first graders if presented during the passage and then reinstated as retrieval cues during the time of testing.

So far no researchers have examined the use of partial pictures to facilitate oral prose in a retarded population.

General Overview of Strategies to Improve Prose Comprehension

Levin and Pressley (in press) have reviewed general learning strategies that seem to improve children's prose comprehension. These include Ausubelian advance organizers and other content-clarifying or sensitizing strategies, as well as those information-processing activities that can be used during presentation of a passage. The strategies were grouped into basic categories according to

(a) whether their success depends primarily on the prose passage itself (prose dependent) or on the individual who is processing the passage (processor dependent); and

(b) whether their primary function is one of preparing the learner for the upcoming prose information (stage setting) or of facilitating learning more directly (storage/retrieval).

Within this framework all of the above studies that used incomplete pictures to facilitate children's oral prose comprehension may be categorized as both "prose-dependent" and "processor-dependent" in that all depend on both "author-illustrated contexts" and "listener-imagined

content" (Levin & Pressley, in press). In addition, they all utilize storage/retrieval strategies since the illustrations are only presented during a passage and/or during the recall questions. What has not yet been discussed is the use of incomplete pictures to "set the stage" for prose learning.

Pictures as Stage-Setters in Prose Learning

Studies conducted by Bransford and Johnson (1973) demonstrate that adults' prose learning can be facilitated if subjects are provided with an appropriate organizing or stage-setting strategy, especially when it provides relational information about content material. Following this line of reasoning, Arnold and Brooks (1976) created eight short, difficult-to-comprehend prose passages (60 - 80 words each) and presented them to second- and fifth-grade students. Each subject was assigned to one of four experimental conditions designed to measure the relative effectiveness of presenting relational information about story content in either a verbal or pictorial mode. Results paralleled those of Bransford and Johnson (1973) and suggested that the degree to which a stage-setting strategy can provide relational information about story content can influence facilitation of children's oral prose recall as measured by a free-recall test immediately after each story. In particular, the use of stage-setting pictures which displayed a relationship among the "elements"

of a story relative to a random pictorial arrangement showing the same details was beneficial, even for the youngest children.

It was previously noted that use of imagery instructions alone has not been found to facilitate oral prose learning for young children or the EMR. But based on the results of Arnold and Brooks (1976) it would be interesting to determine whether either of these populations can benefit from stage-setting illustrations used in conjunction with imagery instructions.

Chapter 3

Statement of the Problem

It was the purpose of this project to probe further into the use and potential of incomplete pictures for enhancing recall of orally presented prose passages in an educable mentally retarded population. Previous studies concerning the use of visual imagery as an effective oral prose-learning aid for the EMR have designed and measured the effectiveness of primarily storage/retrieval strategies for improving recall. In this study both storage/retrieval and stage-setting strategies were examined in the context of incomplete pictures.

Design

Each subject was randomly assigned to one of four experimental conditions:

(1) Control: Subjects listened to a single presentation of each story;

(2) Imagery: Subjects were given imagery instructions before listening to each story;

(3) Component Pictures: Subjects were given imagery instructions and viewed relevant component pictures before listening to each story; and

(4) Partial Pictures: Subjects were given imagery instructions and viewed partial pictures during each story.

Expected Outcomes

The various conditions were designed to represent varying degrees of pictorial help (external support) to induce imagery. Condition 2 (Imagery) was included in the present experiment as an attempt to replicate the results obtained with the imagery condition employed by Bender and Levin (1978). However, for this experiment the accompanying imagery instructions were modified so that immediately prior to the experiment the subjects were shown a concrete example of what was meant by "forming an image" or "pretending to see a picture" (see the instructions for the Imagery group in Appendix 2). It was expected that even with the provision of this example, imagery instructions per se would not improve EMRs' recall. However, with their greater amounts of external pictorial support, the other conditions might. Whether Condition 4 (Partial Pictures) would facilitate recall more than Condition 3 (Component Pictures) was uncertain.

Among retarded school-age children, grade level is not as highly correlated with chronological age as it is among a regular school-age population. In other words, it is much more common to find a certain percentage of chronologically older EMR students at a very low grade level than it is to find the same percentage of normal students at the same very low grade level. Consequently it is expected that

differences in grade level more so than differences in CA of EMR subjects may influence the results of this study. In order to explore this possibility, and because of results of previous research with normal children which indicate a cut-off point of third grade and above in terms of identifying those children who derive maximum benefit from use of induced imagery strategies to facilitate prose recall, each of the four experimental conditions included equal numbers of children with school records indicating reading achievement above and below a third-grade level.

Chapter 4

Method

Subjects

A total of seventy-two subjects were taken from public school special education classes in Madison, Wisconsin (urban community) and Oregon, Wisconsin (semi-rural community). All subjects were classified as Educable Mentally Retarded by school personnel ($\overline{IQ}$ = 69.67 based on WISC-R scores as reported in school records) and showed no clinical abnormalities (neurological damage, severe sensory defects or physical stigmata).

Materials

Two ten-sentence narrative passages that were adapted from Ruch and Levin (in press) were used in the present experiment. Each sentence made reference to an object about which a "Wh" question was later asked. Following Ruch and Levin (in press) each of the questions in this experiment was essentially a paraphrase of the original sentence.

Immediately prior to presentation of the stories a one-sentence practice story along with instructions and props appropriate for each subject's condition was provided, followed by sample recall questions and appropriate feedback. The practice story and questions were presented by the examiner.

After a child listened to the first story and responded to its questions, the second story and accompanying questions were presented by a male speaker via a tape recorder. Questions were also presented in the temporal order of each story. (See Appendix 1 for a complete script of the stories and questions.)

Partial pictures (colored line drawings) appropriate to one of the various experimental conditions were inserted into looseleaf binders. The partial pictures accompanying the two ten-sentence narrative passages (one picture per sentence) were developed by Guttmann et al. (1977, Experiment 1) and Ruch and Levin (in press). In order for the child to understand the concept of partial pictures, the to-be-probed-for object was pointed out to him(her) during presentation of the partial picture with the sample story.

Component pictures (also colored line drawings) consisted of selected characters, objects, or settings which were significant to the entire 10-sentence passage but which were less complete than any of the partial pictures. There were several component pictures for each story, although there was not necessarily a one-to-one correspondence between the number of component pictures and the number of sentences in the passage. All component pictures relevant to one story were pasted on the inside of a 9 x 12 inch manilla folder and

presented simultaneously prior to presentation of the associated story. Component pictures were used before rather than during passage presentation in order to test the effectiveness of stage-setting strategies discussed above.

Procedure

Subjects were tested individually in a room with only the experimenter present. All subjects were told initially that they were going to hear a story and that afterward they would be asked to answer some questions about the story. Before leaving the testing room, subjects were asked not to talk to their friends about what they did "so the stories will be surprise for them too." (A complete script of the practice story and question, as well as specific instructions appropriate for each experimental condition, are presented in Appendix 2.)

Chapter 5

Results

Each of the four experimental conditions included 18 subjects (nine children whose reading level was reported to be at third grade or above on school records and nine children reading below third-grade level), yielding a total sample size of 72. Subjects' responses were scored on a point basis, with a maximum possible score of 20 points (one point maximum per question, ten points maximum per story). Half-point credit was given for responses in which some but not all of the information was correct. Decisions concerning which responses received zero-, half-, or whole-point credit were agreed upon by two raters who were not aware which of the answers appeared in each of the four experimental conditions.

The data were analyzed using a set of planned orthogonal comparisons, rather than by a traditional analysis of variance, since specific contrasts of interest were agreed upon prior to the data analysis. The total scores obtained for all twenty questions were analyzed and subjected to the seven planned comparisons presented in Table 1. Comparisons among treatments were examined both across reading level ($\hat{\Psi}_1 - \hat{\Psi}_3$) as well as in interaction with reading level ($\hat{\Psi}_5 - \hat{\Psi}_7$). The

Table 1

Seven Planned Comparisons Performed on Data of EMR Subjects Under Four Conditions and Two Grade Levels

Comparisons	Reading Level At or Above Third Grade				Reading Level Below Third Grade			
	PARTIAL	COMPONENT	IMAGERY	CONTROL	PARTIAL	COMPONENT	IMAGERY	CONTROL
$\hat{\Psi}_1$ (Pictures vs Non-pictures)	+1	+1	-1	-1	+1	+1	-1	-1
$\hat{\Psi}_2$ (Partial vs Component)	+1	-1			+1	-1		
$\hat{\Psi}_3$ (Imagery vs Control)			+1	-1			+1	-1
$\hat{\Psi}_4$ (Reading Level)	+1	+1	+1	+1	-1	-1	-1	-1
$\hat{\Psi}_5$ (Pictures vs Non-pictures by Reading Level	+1	+1	-1	-1	-1	-1	+1	+1
$\hat{\Psi}_6$ (Component vs Partial by Reading Level)	+1	-1			-1	+1		
$\hat{\Psi}_7$ (Control vs Imagery by Reading Level)			+1	-1			-1	+1

remaining comparison ($\hat{\Psi}_4$) was made in order to detect any significant difference occurring between scores of EMR subjects reading at or above third-grade level and those who were below, without regard to treatment condition.

Each of the seven planned comparisons was conducted at an alpha level of .05, two-tailed. Means and standard deviations obtained under each of the four conditions, and for each of two reading levels, are presented in the eight cells of Table 2. Each mean represents the average score out of a maximum of twenty.

The error term for all scores resulting from total questions was computed to be $MS_E = 15.3989$, and this term was used in each of the seven comparisons. In order to identify a significant difference for each set of comparisons a t statistic was generated and compared to critical values of $t_{64}(.975) = 2.00$ and $t_{64}(.025) = -2.00$. Obtained t statistics for all seven comparisons, along with the critical t statistic, are listed in Table 3. As can be seen, none of the seven comparisons was statistically significant.

Within each experimental condition, the correlation between score and chronological age was also calculated in an attempt to further check one of the original speculations, i.e., that chronological age of EMR subjects was not related to ability to respond to induced imagery strategies (see Table 4). To

Table 2

Means and Standard Deviations
Obtained Under Four Conditions and Two Reading Levels
of EMR Subjects for Total Scores

(maximum = 20)

	Control	Imagery	Component	Partial Picture	ACROSS CONDITIONS
Reading Level At or Above Third Grade	$\bar{X}$=13.67 SD=2.74	$\bar{X}$=14.0 SD=4.44	$\bar{X}$=13.0 SD=1.98	$\bar{X}$=14.33 SD=3.38	$\bar{X}$=13.75
Reading Level Below Third Grade	$\bar{X}$=12.61 SD=4.74	$\bar{X}$=11.0 SD=4.04	$\bar{X}$=10.89 SD=5.75	$\bar{X}$=13.44 SD=2.78	$\bar{X}$=11.99
ACROSS READING LEVELS	$\bar{X}$=13.14	$\bar{X}$=12.5	$\bar{X}$=11.94	$\bar{X}$=13.89	

Table 3

t Statistics Pertaining to Total Scores

for EMR Subjects

	Comparison	t Statistic
$\hat{\Psi}_1$	(Picture vs Non-picture)	.10
$\hat{\Psi}_2$	(Partial vs Component)	1.49
$\hat{\Psi}_3$	(Imagery vs Control)	-.49
$\hat{\Psi}_4$	(Reading Level)	1.91
$\hat{\Psi}_5$	(Picture vs Non-Picture by Reading Level)	-.15
$\hat{\Psi}_6$	(Component vs Partial by Reading Level)	.47
$\hat{\Psi}_7$	(Imagery vs Control by Reading Level)	.74

Difference is significant only if $t > t_{64}(.975) =$ 2.00 or if $t < t_{64}(.025) = -2.00$.

Table 4

Correlation Between Score and Chronological Age (in months) Within Each Condition for EMR Children

Conditions			
Control	Imagery	Component	Partial
.05	.42	.34	.21

be statistically significant at the .05 level of significance, a correlation of .47 is required. Thus, none of the values in Table 4 is statistically significant. However, calculation of the correlation between score and mental age within each experimental condition did yield statistically significant results at least for the imagery condition, where r = .53 (see Table 5).

Table 5

Correlation Between Score and Mental Age (in months)

Within Each Condition for EMR Children

Conditions			
Control	Imagery	Component	Partial
.16	.53	.45	.46

Chapter 6

Discussion

Inasmuch as previous research has revealed developmental differences in the effectiveness of induced imagery strategies above and below third grade (Bender & Levin, 1978; Guttmann et al., 1977; Shimron, 1974), prior to data collection it was thought that use of imagery instructions alone would not significantly facilitate oral prose recall of EMR subjects. This was anticipated even if just prior to the stories they were shown a concrete visual representation of what it means to form an image or picture of something in one's head. The speculation was borne out in the data. Moreover, the results of this and other studies leave open to question whether or not the prose comprehension of EMRs can be facilitated even when imagery instructions are combined with concrete visual support.

Use of partial pictures, for example, had not been studied with EMR subjects prior to this study. And although use of complete pictures had facilitated prose recall for children of all ages studied (Bender & Levin, 1978; Guttmann et al., 1977; Shimron, 1974), if use of partial pictures presented during a prose passage had not significantly facilitated recall even for normal kindergarten and first graders (Guttmann et al., 1977; Ruch & Levin, in press) one might wonder how realistic it would be to expect success of partial pictures with the retarded.

On the other hand, Riding and Shore (1974) claimed to use picture elements (something akin to but less complete than partial pictures) and reported positive results with a retarded population.

Regarding the use of component pictures as stage-setters to facilitate recall: this strategy had not yet been tried with EMR subjects either. But since use of stage-setting pictures which displayed a relationship among the "elements" of a prose passage was facilitative even for second-grade subjects (Arnold & Brooks, 1976) it was considered that similar stage-setting pictures coupled with imagery instructions may in fact lead to improved comprehension for the retarded.

As can be seen from the data in Table 3, no significant differences were detected. That is, relative to the control condition none of the experimental conditions significantly facilitated comprehension of the two ten-sentence prose passages used in this experiment.

As expected, the nonsignificant comparison 3 (Imagery vs Control) replicates the Bender and Levin result, where instructions to image without any visual aids had no effect whatsoever at facilitating oral prose recall of EMR subjects.

However, according to results of comparison 1 (Picture vs Non-picture), at least under the conditions of the present experiment additional pictorial support was not sufficient

to facilitate recall either. This is in contrast to cited findings with normal "transitional" children (Guttmann et al., 1977; Arnold & Brooks, 1976) and with the EMR (Riding & Shore, 1974).

Caution must be exercised, however, before jumping to definite conclusions about the inability of either partial or component pictures to facilitate the prose recall of EMR subjects. Their effectiveness may vary with only slight modifications of particular conditions of the present experiment (length of stories, quality of instructions, use of extended practice, etc.). It is also important to keep in mind the conclusions of Ruch and Levin (in press) who found that partial pictures can facilitate young children's prose recall, but only if the partial pictures are reinstated as retrieval cues during questioning. The same phenomenon should be explored with EMR children before ruling out either partial pictures or component pictures as means of improving oral prose comprehension of the retarded.

Though not statistically significant, the direction of the t statistic obtained for comparison 2 (Partial vs Component) may be interpreted as indicating possibly more beneficial use of partial pictures (storage/retrieval strategy) than component pictures (stage-setting strategy) as mnemonic aids in future research with the EMR. However this too would have to be investigated directly in a follow-up experiment.

One additional task of the present experiment was to investigate the possibility of a relationship between subjects' grade level and performance. Bender and Levin (1978) had looked at the effect of retarded subjects' chronological age on performance and found no significant interaction. Similarly, the correlations between chronological age and subjects' performance were not significant in the present experiment. However, as mentioned above, chronological age is not as highly correlated with grade level for retarded school-age children as it is among a normal school-age population, and therefore grade level more than chronological age may influence results of this research.

Although all of the comparisons involving an interaction with reading level ($\hat{\Psi}_5 - \hat{\Psi}_7$) were statistically negligible across all conditions, the difference between subjects of the two reading levels was larger than for any other difference examined. In fact, the difference would be statistically significant ($p < .05$) on the basis of a one-tailed test. Thus, reading level tended to predict performance on the present task, even among the present retarded population.

Data from Table 5 indicate a statistically significant positive correlation between prose recall and MA for subjects in Condition 2 (Imagery). It should also be noted that correlations between score and mental age of subjects in Conditions 3 and 4 (Component and Partial) were almost high

enough to be statistically significant, as compared to the much lower correlation within Condition 1 (Control). It therefore appears that differentiating between subjects according to mental age as opposed to reading level is another possibility that could be considered in future experiments and may yield more useful information regarding beneficial use of imagery instructions alone and/or when combined with other visual cues. In fact, when discussing the developmental imagery hypothesis in previous chapters, the focus has always been on a minimum chronological age at which children are capable of generating and using imagery to facilitate PA or prose recall. However, in light of the above correlations, perhaps it is more appropriate to focus on a minimum mental age at which subjects can benefit from induced imagery strategies. Of course, in normal child-populations (on which the existing literature is chiefly based), MA and CA would be expected to be highly correlated.

There are several reasons why the results of this study should not be ignored, despite the fact that no significant differences were detected among conditions. First, the stories used here have been used before with normal populations and similar stories have been used previously with the retarded. In all these cases complete pictures have been successful at facilitating prose recall and partial pictures have been found to improve the comprehension of at least normal

children. Second, no obvious differences have been noted between the EMR populations used in this experiment and that used by Bender and Levin (1978) in which pictures were successfully used to facilitate recall. Third, analysis of mean scores across conditions in Table 2 shows there is also no evidence of "ceiling" or "floor" effects which sometimes makes otherwise noticeable differences hard to detect. And finally, even if the results from the above comparisons are interpreted to mean that imagery instructions combined with visual cues to help induce imagery may not be successful at significantly facilitating recall of oral prose for EMR subjects as a group, it should be noted that within these conditions there were individuals whose scores indicate that they indeed were attending and learning. As a practical result of this type of research, perhaps a screening device could be developed which would detect those individuals who do benefit from partial and/or complete pictures. Educators could then use induced imagery instructions combined with specific types of visual aids appropriately matched to various retarded individuals in order to train any number of self-help skills.

Chapter 7

Summary and Conclusions

It was the purpose of this study to probe further into the use and potential of incomplete pictures for enhancing recall of orally presented prose passages in an educable mentally retarded population. Seventy-two EMR subjects were randomly assigned to one of four experimental conditions (Partial, Component, Imagery and Control), with one half of the people in each condition reading at or above a third-grade level and one half reading below a third-grade level. All subjects listened to two ten-sentence narrative passages recorded on tape and were asked one recall question per sentence immediately following each story.

Partial pictures were defined as pictures depicting all the information in one sentence with the exception of the to-be-probed-for object of that sentence, and subjects in the partial picture condition viewed a different partial picture during each sentence of the story. Component pictures were defined as pictures depicting some but not all of the people and objects associated with a story (again not showing any of the to-be-probed-for objects from the story), and subjects in the component picture condition were presented with component pictures appropriate to each story

simultaneously before listening to the passage. Imagery subjects were asked to pretend they could see a picture of everything they heard whereas control subjects merely listened to the two stories with no further assistance.

Responses to the recall questions were recorded on a point basis and total scores were analyzed in terms of seven planned comparisons (alpha level = .05, two-tailed) among treatment conditions. Comparisons among treatments were examined both across reading level and in interaction with reading level as well as between reading levels without regard to treatment condition. Correlations between score and chronological age and between score and mental age were also examined. Of all the seven comparisons and correlation coefficients only one (positive correlation of score and mental age in the Imagery condition) was statistically significant.

These data can be interpreted to mean that relative to the control condition none of the experimental conditions significantly facilitated comprehension of the two ten-sentence prose passages used in this experiment. Reasons not to disregard these data were discussed as well as implications for future research.

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Appendix 1

STORIES AND RECALL QUESTIONS

PRESENTED TO EMR SUBJECTS

Story #1: Sue and her Family

1. Sue's family sat down to eat turkey for dinner.
2. Their dog Taffy was in the corner of the room watching her two puppies playing.
3. Right after dinner, Sue helped her mother by putting the butter in the refrigerator.
4. Sue's mother gave her a bowl of ice cream with peanuts on top for dessert.
5. Sue took the bowl of ice cream into the living room and one of the puppies followed her.
6. Sue was eating her ice cream when the door bell rang in the next room.
7. Before she went to answer the door bell, Sue put the bowl of ice cream down on the bookshelf.
8. When she came back, Sue was very surprised to find a bone instead of her bowl of ice cream on the bookshelf.
9. She didn't see Taffy and when she looked out the window all she could see was the flower garden.
10. But when she went outside she found Taffy lying in her doghouse lapping up the bowl of ice cream.

Questions

1. What did the family have for supper?
2. How many puppies did the dog have?
3. After they ate dinner, what did Sue place in the refrigerator?
4. What was Sue's ice cream covered with?
5. Who came with Sue when she went into the living room?
6. What happened in the nearby room while Sue was eating her dessert?
7. Where did Sue place her dessert when she got up to answer the door bell?
8. What did Sue see in place of her dessert when she returned from answering the door bell?
9. What did Sue see from the window?
10. Where did Sue find the dog outside?

Story #2: Bobby's Class Visits the Zoo

1. One morning, Bobby and his first-grade class took the train to the city zoo.
2. They met next to the flagpole before going inside to see the animals.
3. The woman at the zoo gave the children a map so they could see the animals.
4. When they got inside the zoo, Bobby handed an orange to the big gorilla.
5. In the bird cage, the birds were taking a bath as the children watched.
6. The children then saw the goats chase each other around in their pen.
7. As they were standing next to his cage the elephant put his trunk on Bobby's shoe.
8. After they finished watching the animals, the class met at the picnic tables to eat their lunch.
9. After they ate their lunch, some of the children ate watermelon and played frisbee.
10. Right before leaving, the children got in a circle so the teacher could count them and see if anyone had gotten lost.

Questions

1. How did the children get to the city zoo?
2. Where did Bobby and his class meet before going into the zoo?
3. What did the kids get from the woman at the zoo?
4. What did Bobby give to the gorilla?
5. What did the birds do as the children watched?
6. Which animals were chasing one another?
7. Where did the elephant touch Bobby with his trunk?
8. Where did Bobby and his class meet after they saw all the animals?
9. What game did the children play?
10. What did the kids do right before they left?

Appendix 2

INSTRUCTIONS TO EMR SUBJECTS

CONTROL GROUP

Introduction:

I have a tape recorder here with some stories that I am going to play for you. I want you to listen very carefully because when each story is over I am going to ask you some questions about what happened in the story. If you listen real carefully it will help you remember the story so you can answer the questions about it later. OK? Good.

Practice:

Now before we listen to the stories, let's try a little practice story so you can get used to doing this. Listen very carefully so you can remember it.

Suppose you heard this story: "The eagle carried some sticks to his nest."

One of the questions I might ask you is: "What was the eagle carrying to his nest?" (Reinforce correct response "some sticks" with..."Yes, that's right" or incorrect response with..."No, the eagle was carrying some sticks.")

Story #1:

Now I'm going to play you a longer story on the tape recorder. Remember to listen very carefully because when the story is over I'm going to ask you some questions about what happened in the story. Ready...Listen...

(Play recording)

Now here are some questions about the story. Try hard to answer each one. Don't be afraid to guess if you are not sure because it doesn't matter if you make mistakes. (Similar prompts may be made after each question.)

Story #2:

Good. You are doing just fine. I have one more story for you. Remember to listen very carefully because when the story is over I'm going to ask you some questions about what happened in the story. Ready...Listen...

(Play recording)

Now here are some questions about the story. Try hard to answer each one.

Thank you very much. Please don't tell your friends about what we did so the stories will be a surprise for them too.

IMAGERY GROUP

Introduction:

I have a tape recorder here with some stories that I am going to play for you. I want you to listen very carefully because when each story is over I am going to ask you some questions about what happened in the story. When you listen to the story I want you to do something very special. After each little part of the story, I want you to stop and pretend that you can see a picture in your head of everything in the story just like when you watch a story on TV. I want you to try real hard. If you do this it will help you remember the story so you can answer questions about it later. OK? Good.

Practice:

Now before we listen to the stories let's try a little practice story so you can get used to doing this. Ready...Listen...and after the story pretend you see a picture of everything in the story.

Suppose you heard this story: "The eagle carried some sticks to his nest." Try real hard to get a picture of that in your head.

Can you get a picture of an eagle? Can you get a picture of an eagle carrying some sticks? Let me show

you an example of a picture I made up and we'll see what it looks like (show complete picture). Did you think of a picture in your head that looked something like this? Here is an eagle carrying some sticks to his nest. The picture you made up may be a little different from mine but that's OK.

Now I'm going to ask you a question about the story: "What was the eagle carrying to his nest?" If you think back to the picture you made up, that will help you answer the questions. (Reinforce correct response "some sticks" with "Yes, that's right" or incorrect response with..."No, the eagle was carrying some sticks.")

Story #1:

Now I'm going to play you a longer story on the tape recorder. Remember to listen very carefully because when the story is over I'm going to ask you some questions about what happened in the story. Ready...Listen...and after each part of the story remember to stop and pretend that you can see a picture in your head of everything from the story just like you did before.

(Play recording)

Now here are some questions about the story. Try hard to answer each one by thinking back to the pictures you made up. Don't be afraid to guess if you are not sure because it doesn't matter if you make mistakes. (Similar prompts may be made after each question.)

Story #2:

Good. You are doing just fine. I have one more story for you. Remember to listen very carefully because when the story is over I'm going to ask you some questions about what happened in the story. Ready...Listen... and after each part of the story, remember to stop and pretend that you can see a picture in your head of everything from the story just like you did before.

(Play recording)

Now here are some questions about the story. Try hard to answer each one by thinking back to the pictures you made up.

Thank you very much. Please don't tell your friends about what we did so the stories will be a surprise for them too.

COMPONENT PICTURES GROUP

Introduction:

I have a tape recorder here with some stories that I am going to play for you. I want you to listen very carefully because when each story is over I am going to ask you some questions about what happened in the story. Before you listen to each story I will show you pictures of some of the people and places that are in the story so that you will get to know what the story is going to be about. When you listen to the story I want you to do something very special. After each little part of the story I want you to stop and think back to the pictures I showed you, and they will help you make up a picture in your head of everything from the story, just like when you watch a story on TV. I want you to try real hard. If you do this it will help you remember the story so you can answer questions about it later. OK? Good.

Practice:

Now before we listen to the stories let's try a little practice story so you can get used to doing this. This story is going to be about an eagle that looks like

this (show component picture). Now listen...and after the story remember this picture and then pretend you can see a picture of everything from the story.

Suppose you heard this story: "The eagle carried some sticks to his nest". Try real hard to get a picture of that in your head.

Remember the picture I showed you. Can you get a picture of an eagle in your head? Can you get a picture of an eagle carrying some sticks? This is the picture I showed you before (show component picture). Now let me show you an example of a picture I made up that shows everything and we'll see what it looks like (show complete picture). Here is an eagle carrying some sticks to his nest. The picture you made up may be a little different from mine but that's OK.

Now I'm going to ask you a question about the story: "What was the eagle carrying to his nest?" If you think back to the picture you made up, that will help you answer the question. (Reinforce correct response "some sticks" with "Yes, that's right" or incorrect response with "No, the eagle was carrying some sticks.")

Story #1:

Now I'm going to play you a longer story on the tape recorder. I want you to listen very carefully because when the story is over I'm going to ask you some questions about what happened in the story. Before you start let me show you some pictures so you will get to know what the story is going to be about (show component pictures). This story is going to be about a girl named Sue. Sue and her family and her dog are at home. See this is a picture of the inside of Sue's house (point to appropriate picture). This is Sue, this is her mother, and this is her dog (point to appropriate pictures after mentioning each one). Now listen to the story...and after each part of the story think back to these pictures and they will help you make up a picture of everything in the story.

(Remove pictures and play recording)

Now here are some questions about the story. Try hard to answer each one by thinking back to the pictures you made up. Don't be afraid to guess if you are not sure because it doesn't matter if you make mistakes. (Similar prompts may be made after each question.)

Story #2:

Good. You are doing just fine. I have one more story for you. Remember to listen very carefully because when the story is over I'm going to ask you some questions about what happened in the story. Before you start let me show you some pictures so you will get to know what the story is going to be about (show component pictures). This story is going to be about a boy named Bobby. Bobby and his teacher and his class go to the zoo. See, this is a picture of the zoo (point to appropriate picture). This is Bobby, this is his teacher, and this is his class (point to appropriate pictures after mentioning each one). Now listen to the story and after each part of the story think back to these pictures and they will help you make up a picture of everything in the story.

(Remove pictures and play recording)

Now here are some questions about the story. Try hard to answer each one by thinking back to the pictures you made up.

Thank you very much. Please don't tell your friends about what we did so the stories will be a surprise for them too.

PARTIAL PICTURES GROUP

Introduction:

I have a tape recorder here with some stories that I am going to play for you. I want you to listen very carefully because when each story is over I am going to ask you some questions about what happened in the story. When you listen to the story I'm going to show you some pictures that show you some of the things that are going on in the story, but not everything. So I want you to do something very special. After each little part of the story I want you to stop and pretend you can see a picture in your head of all the people and things in the story just like when you watch a story on TV. I want you to try real hard. If you do this it will help you remember the story so you can answer questions about it later. OK? Good.

Practice:

Now before we listen to the stories let's try a little practice story so you can get used to doing this. Listen...and after each part of the story pretend you see a picture of everything from the story.

Suppose you heard this story and saw this picture (show partial picture): "The eagle carried some sticks

to his nest." Try real hard to get a picture of that in your head.

Look at this picture (point to partial picture). The sticks are missing. Can you get a picture of an eagle carrying some sticks? Let me show you an example of a picture that I made up that shows everything and we'll see what it looks like (show complete picture). Here is an eagle carrying some sticks to his nest. Did you think of a picture in your head that looked something like this? The picture you made up may be a little different from mine, but that's OK.

Now I'm going to ask you a question about the story: "What was the eagle carrying to his nest?" If you think back to the picture you made up, that will help you answer the question. (Reinforce correct response "some sticks" with "Yes, that's right" or incorrect response with..."No, the eagle was carrying some sticks.")

Story #1:

Now I'm going to play you a longer story on the tape recorder. I want you to listen very carefully because when the story is over I'm going to ask you some questions about what happened in the story. Ready?... Listen...and after each part of the story pretend you can see a picture of everything from the story.

(Play recording and show appropriate partial picture during each sentence)

Now here are some questions about the story. Try hard to answer each one by thinking back to the pictures you made up. Don't be afraid to guess if you are not sure because it doesn't matter if you make mistakes. (Similar prompts may be made after each question.)

Story #2:

Good. You are doing just fine. I have one more story for you. Remember to listen very carefully because when the story is over I'm going to ask you some questions about what happened in the story. Ready?...Listen... and after each part of the story pretend you can see a picture of everything from the story, just like you did before.

(Play recording and show appropriate partial picture during each sentence)

Now here are some questions about the story. Try hard to answer each one by thinking back to the pictures you made up.

Thank you very much. Please don't tell your friends about what we did so the stories will be a surprise for them too.

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